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Perceptions of Nigerian Accountants and Engineers on Quality Management and Project Cost in Anambra State, Nigeria

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ABSTRACT

The study empirically examines the perceptions of Nigerian accountants and engineers, in respect of quality management, project cost, and the critical success factors that affect the performance of project cost in Anambra State of Nigeria. The target population was eighty (80) registered construction companies in Anambra State. Three research questions were raised and three hypotheses were formulated and tested. The study adopts descriptive research design. Non-probability sampling method is used to select twenty-two professionals (i.e. accountants (12) and engineers (10)) and primary data were collected through the use of questionnaire. Simple percentage, frequency, charts, mean, single factor ANOVA (multi-level ANOVA) and t-test were used to analyse the data via Statistical Package for Social Science Students (SPSS) version-23. The findings from the study reveal that there is no significant difference in the perceptions of accountants and engineers with regards to the critical success factors that affect the project cost in Anambra State. The study recommends among others that Commitment to quality and to continuous quality development is crucial in project execution and implementation. Personnel commitment to TQM and participation in the planning process and implementation is crucial.

Keywords: *Quality management, project cost, accountants and engineers.*

INTRODUCTION

Project management incorporates certain functions progressively through the project life cycle with the aim of satisfying the stakeholders and constituents according to the project's established requirements (Peter, 2001 and Irefin, 2013).Project success is typically generated when the stakeholders and constituents express their collective satisfaction according to the degree of their involvement. Project management also includes planning, organizing, directing and controlling activities in addition to motivating what are usually the most expensive resources on the project. The four key elements

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required for the execution and actualization of project is the 4ms, that is, men, money, material and machine; for the successful attainment and completion of project, there is need to consider the critical success factors (CSFs). These critical factors include management, customer satisfaction, education and training. All these critical factors boil down to resources availability which is fund (cost implication). The term cost had been known by different terminologies, such as value, price, fee or rate among others. In manufacturing, construction, research, investment appraisal, capital budgeting, accounting and other disciplines, a cost, price or fee is the value of money that has been used up to execute project or produce something, and hence is no process available for use anymore. In business or project management, the cost may be one of acquisition, in which case the amount of money expended to acquire it is counted as cost. In this case, money is the input that is gone in order to acquire the thing. This acquisition cost may be the sum of the cost, value or price of production or project management as incurred by the manager (Kirzner, 1979).

Quality is one of the critical factors in the success of construction projects. Quality of projects, as well as project success, can be regarded as the fulfillment of expectations (that ism the satisfaction) of the project participants. Quality of projects is linked with proper quality management in all the phases of project life cycle. Cost estimation, and design of construction are the two important phases of project life cycle which affect the quality outcome of projects significantly. Bamisile (2004) asserts that the Nigerian society at large, perceive that most project fails to offer value for money, construction projected are said to be costly, delay in completion and susceptible to failure. Ibironke (2009) avows that the hitches encountered in the process of managing the three parameters, manifest mainly at two points in the total project process, that is, at the interface between the client and designer and the interfaces between the designer and the contractor. Ibironke (2009) adds that the key problem of project failing to meet with the client requirements of time, cost and quality (TCQ) include the following:

> "*Client and designer may misunderstand or not agree on the detail of the brief with regards to the projects purpose performance or appearance; The designer and contractor may through misunderstanding or ignorance, misinterpret the objectives regarding, time, cost and quality specified in the relevant contract document. And designer sometime may design a project that cannot be executed to the required levels of quality, constructed within time and cost.*"

No organization carrying out project, whether large or small, private or public, can overlook its project cost, environmental factors and quality management if it is to survive. The industry's clients are advancing. Clients demand improved service quality,

faster buildings and innovations in know-how. The rudiments of quality cost project management: culture of teamwork, improved service quality and innovations in know-how are the framework.

Therefore, the study intends to assess Nigerian accountants and engineers' perceptions in quality management project cost through an empirical study. To achieve this, three research questions were raised and three null hypotheses were formulated to guide the study:

i. Does the perception of accountants and engineers in Anambra State on the material factors that affect the performance of projects cost significantly depend on the organisational type?
ii. Is the perception of accountants and engineers in Anambra State on time management factors that affect the performance of project cost significantly influenced by their educational qualification?
iii. Is the perception mean rating of accountants and engineers in Anambra State on quality management factors that affect the performance of project cost independent of working experience?

i. The perception of accountants and engineers in Anambra State on the material factors that affect the performance of projects cost does not significantly depend on the organisational type.
ii. The perception of accountants and engineers in Anambra State on time management factors that affect the performance of project cost is not significantly influenced by their educational qualification.
iii. The perception mean rating of accountants and engineers in Anambra State on quality management factors that affect the performance of project cost is not independent of working experience.

Project and Cost

A project is a group of tasks or scheme for investing resource which can reasonably be analyzed and evaluated as independent unit or series of task or activities that have several distinguishing characteristics performed in a definable time period, in order to meet a specific set of objectives (Sarfo, 2007). Project has the following characteristics. It is likely to be a one-time programme, it has a life cycle with a specific start and end date, and it has budget and likely to require the use of multiple resources, that consume human and non-human resources which are multi-functional; most of which may be scarce and have to be shared among others. It may require the establishment of a special organization or the crossing of traditional organizational boundaries; organized

work towards a predefined goal or objective that require resources and effort, a unique (and therefore risky) venture having a budget and schedule (Kirzner, 1979; Hamburger 1990; Turner, 1993; Spinner 1997; Harvey, 1999; Chapman 2003; Kerzner, 2003; Akarakiri, 2007; Irefin, 2013). Project work is continuously evolving, established its own work rules, and is the antithesis of repetition in the work place. As a result, it represents an exciting alternative to business as usual for many companies. The challenges are great, but so are the rewards of success. First, we need a clear understanding of the properties that make projects and project management so unique. Consider the following definitions of projects:

i. A project is a unique venture with beginning and end, conducted by people to meet established goals within parameters of cost, schedule and quality.
ii. Projects are goals oriented, involve the co-ordinate undertaking of interrelated activities, are of finite duration, and are all, to a degree, unique.

Whatever resource needed or required by any project it must be quantified in a monetary term; this term is what is being refers to as project cost or value. The cost element of a project is the most vital or essential components of projects resources required for the successful execution and completion of a project without which it lead to the failure of the entire project; thereby leading to the dissatisfaction of the various stakeholders involve in the project management and implementation.

Total Quality Management

To the client, quality may be defined as one of the components that contributes to "value for money" (Flanagan and Tate, 1997 as cited in Bowen, Hall, Edwards, Pearl and Cattell). Total quality management as: "…the integration of all functions and processes within an organisation in order to achieve continuous improvement of the quality of goods and services (Vincent and Joel, 1995 as cited in Bowen (nd) et al.). The goal is customer satisfaction. Furthermore, in order to achieve successful project quality management three separate drivers to quality management must be managed, namely:

i. Integration of the project team so as to have a single objective and a common culture
ii. A customer focus for the team thereby facilitating the provision of products and services that will meet the clients' needs
iii. A process of continuous improvement in the management of the construction project.

When these three components are successfully integrated, the project will begin to realize significant, measurable and observable improvements in the attainment of the

clients' objectives. We argue that an efficient way to address these shortfalls is to recognise the 'human' factor within the management of time, cost and quality. An analysis of the perceptions held by clients, contractors and building professionals, concerning client objectives relating to time, cost and quality management will allow this proposition to be explored. This is done through an opinion survey.

Quality is the degree of excellence in a competitive sense, such as reliability, serviceability, maintainability or even individual characteristics. We usually think of "quality" in terms of an excellent product or service that fulfills or exceeds our expectations. These expectations are based on the intended use and its cost (ISO 8402, as cited in Ashokkumar, 2014). Quality can be expressed as:

$$Q = {}^{P}/_{E}$$ ***Where: Q = Quality; P = Performance; E = Expectation***

If *Q* is greater than 1.0, then the customer has a feeling of great satisfaction about the product or service rendered. The determination of *Q* is based on perception, with the contractor determining performance and the customer determining expectations. The customer expectations are continually becoming more demanding (ISO 8402, as cited in Ashokkumar, 2014). Furthermore, the following should be considered in connection to quality:

Quality Systems Management, Assurances and Control

Quality systems refer to the organizational structure, process, resource and procedure needed to implement quality management. Quality management refers to all activities of overall management functions, especially top management leadership, that determine quality policy objectives and responsibilities for all members of the organization. Quality Planning is identifying which quality standards are relevant to the project and determining how to satisfy quality standards. Total quality management is the management approach of an organization, which concentrates on quality based on the participation of its members and aims at long-term success through satisfaction and benefits to all members of the organization and society. Quality assurance is evaluating the overall project performance on a regular basis to provide a confidence that the project will satisfy the relevant quality standards. The primary function of quality assurance is to obtain completed construction that meets all contract requirements. Quality assurance personnel continually assure or make certain that the contractor's work complies with contract requirements.

Quality Control is the stage by stage monitoring of specific project results to determine if they comply with the relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance. Both ANSI (American National Standards Institute) and ISO in Ashokkumar (2014) define quality control as the

operational technique and activity; for example, providing a means to control and measure the characteristics of a material, structure, component, or system that are used to fulfill requirements for quality.

Accountants' Cost Perception

In accounting, costs are the monetary value of expenditures for supplies, services, labour, products, equipment and other items purchased for use by a business, project or other accounting entity. It is the amount denoted (indicated) on invoices as the price and recorded in bookkeeping records as an expense or asset cost basis. Opportunity cost, also referred to as economic cost is the value of the best alternative that was not chosen in order to pursue the current endeavor (O'Sullivan and Sheffrin, 2003), that is to say, what could have been accomplished with the resources expended in the undertaking. It represents opportunities forgone. In theoretical economics, cost used without qualification often means opportunity cost (O'Sullivan and Sheffrin, 2003; Ison and Wall, 2007).

Project cost seems to be a relatively simple expression, but different people in the organization recognize cost differently. The project manager charged with on-time, on-cost, on-specification execution of a project views the "on cost" component of his responsi-bility as a requirement to stay within the allocated budget, while satisfying a given set of specified conditions (scope of work), within a required time frame (schedule). To project managers, this simply means a commitment to project funds in accordance with a pre-scribed plan (time-based budget). Others in the organization are less concerned with the commitment of funds. The accounting department addresses expense recognition related to a project or an organizational profit and loss statement. The accountant's ultimate goal is reporting profitability, while positively influencing the firm's tax liability.

The comptroller (finance department) is primarily concerned with the organization's cash flow. It is that person's responsibility to provide the funds for paying the bills, and putting the unused or available money to work for the company. To be an effective project manager, one must understand each cost, and also realize that the timing of cost identification can affect both project and corporate financial performance. The project manager must be aware of the different cost perceptions and the manner in which they are reported. With this knowledge, the project manager can control more than the project's cost of goods sold (a function often viewed as the project manager's sole financial responsibility). The project manager can also influence the timing of cost to improve cash flow and the cost of financing the work, in addition to affect-ing revenue and expense reporting in the profit and loss account. When a

transaction takes place, it typically involves both private costs and external costs. Private costs are the costs that the buyer of a good or service pays the seller. This can also be described as the costs internal to the firm's production function. External cost (also called externalities), in contrast, are the costs that people other than the buyer are forced to pay as a result of the transaction. The bearers of such costs can be either particular individuals or society at large. Note that external costs are often both non-monetary and problematic to quantify for comparison with monetary values. They include things like pollution, things that society will likely have to pay for in some way or at some time in the future, but that are not included in transaction prices (Baumol, 1968; Kirzner, 1979; Ison and Wall, 2007).

Social costs are the sum of private costs and external costs. For example, the manufacturing cost of a car (i.e., the costs of buying inputs, land tax rates for the car plant, overhead costs of running the plant and labour costs) reflects the private cost for the manufacturer (in some ways, normal profit can also be seen as a cost of production (Ison and Wall, 2007). The polluted waters or polluted air also created as part of the process of producing the car is an external cost borne by those who are affected by the pollution or who value unpolluted air or water. Because the manufacturer does not pay for this external cost (the cost of emitting undesirable waste into the commons) and does not include this cost in the price of the car, they are said to be external to the market pricing mechanism. The air pollution from driving the car is also an externality produced by the car user in the process of using his good. The driver does not compensate for the environmental damage caused by using the car. A defensive cost is an environmental expenditure to eliminate or prevent environmental damage. Defensive costs form part of the genuine progress indicator (GPI) calculations. Labour costs would include travel time, holiday pay, training costs, working clothes, social insurance and taxes on employment. Path cost is a term in networking to define the worthiness of a path. For the benefit of this study, we may not revalidate existing quality project management cost system management theories which had previously anchored on resource control theory and stakeholders' theory but to present conceptual model and existing empirical reviews affected by the study.

Engineering Project Costs Structure

Engineering accounting is a subset of project accounting. The target of Engineering accounting is to properly track and report the use of resources in relation to engineering projects. It differs from Construction Accounting due to the basis of the inputs and the goals of the reporting. Engineering Accounting combines management reporting and financial reporting for engineering based projects. Engineering accounting is a field that

identifies project scope then measures and communicates costs of a projects outcome. Costs include labor, reimbursable items and unit pricing charges. These costs are measured against budget systems like cost plus, cost plus max and lump sum jobs to determine economic outcomes *(http://smallbusiness.chron.com/engineering-fees-percentage-construction-costs-51642.html).*

Engineering fees may be included in a construction contract or estimate in a number of different ways. These include a lump sum, or fixed overall price as part of the job; a unit price, with a certain cost per structural unit built; cost-plus, which includes the cost of supplies plus an amount for the contractor as either a set amount or percentage; an incentive basis, in which payment is based on the contractor achieving certain milestones; or percentage of construction costs, when payment equals a set percentage of the overall job cost.The engineering fee percentage amount may vary depending on the complexity of the job and the percentage fee of the architect planning the project. Construction costs for large construction projects are usually forecast before any work commences. Private and public projects clients prefer to know the detailed costs of a project, and their required financial commitment, before the in-depth project design work has been completed. Different cost-planning methods exist, and the unit method is one of the most common methods of construction cost planning in use.

Cost Planning: Cost planning is one of the methods used to estimate the costs for construction projects. It is used for both public and private projects. Cost planning allows for the responsible management of construction funds, such as a client's money for a private project or taxpayer money (ies) for public projects. Cost planning is performed during the planning and evaluation phase of a project.

Unit Method: The unit method involves the use of a single functional unit that serves as a multiplier. Historical data from previous, similar construction projects is used to build a cost model of construction costs for one new unit. This unit is then multiplied by the number of units necessary to complete the project, which provides an overall cost estimate. A functional unit may be bedroom in a hotel, the cost per student for a school or cost per bed for hospitals. Some project cost models may use a cost per square foot, based on historical costs for other projects. The estimated costs to build 1 square foot are multiplied by the planned square footage for all floors in the building. This method does not deduct costs for elevators, stairwells and internal walls, which creates some inaccuracy.

Issues with Cost Planning: The cost planning method is used mostly for public

projects. For both public and private projects, the method is useful only in the early stages of defining the project. It works best when used as a rough estimate before much design work has been completed. The unit method produces a rough estimate. The method makes it difficult to allow additional costs for factors such as the size and shape of a building and differences in materials and finishes used on a particular project.

Other Cost Estimate Factors: Many other factors affect an estimate's accuracy. Errors happen during the estimating procedure, such as use of inaccurate pricing, availability of price information and appropriate pricing methods. Design changes and incomplete data, such as erroneously omitted items or incorrect dimensions, also affect the output. Poor judgment on the part of the estimator, such as overlooking certain cost items or not planning for waste parts, are part of the human error that affects accuracy. Uncertainties due to weather, delays in construction, policies on supervision, different construction methods, economic and political issues, changing construction technology, availability of equipment and materials and differences in labor productivity are some of the external influences that may affect the accuracy of cost estimates.

Functions of Engineering Project

Scope of Work and Performance Period: One function of the contract is to define the scope of work to be carried out by the contractor. This is typically broken down into specific tasks with separate deadlines, and it defines the expected results at the end of the project. Exclusions to the contract specify work that is not to be performed by the contractor. An engineering project should specify the time frame for the task, with particular reference to when the job should be completed. Most engineering projects —whether they're for road constructions, real estate development, machinery production or another engineering undertaking — stipulate that full payment is due upon project commissioning or handover, which is why the completion date needs to be spelled out. This also helps with budgeting — both for the contractor and the client.

Payment and Termination: Clients have an obligation to make prompt payment for products delivered or services rendered by the contractor. The contract will specify who is responsible for payment, the rate of compensation or the amount to be paid and invoicing instructions. In case of projects that have a long life, the contract will include details about project milestones and state explicitly whether the client should take ownership of any work in process for which a progress payment has been made. Termination clauses are a common feature in standard engineering projects. They identify the grounds on which the client or contractor may terminate the contractual relationship.

Termination may be for convenience or due to circumstances beyond the control of either party that prevent completion of the task; natural disasters are one example of an event that could lead to a contract termination. The project also provides a framework for how to proceed if either party defaults or breaches certain terms of the contract.

In the construction industry, the aim of project control is to ensure that projects are finished on time, within budget and achieve other project objectives (Olawale and Sun, 2010). A successful project is the only project which has accomplished its technical performance, maintained its schedule, and remained within budgetary costs. Project management tools and techniques play an important role in the effective management of a project (Frimpong, Oluwoye and Crawford, 2003). Construction time and cost are fundamental considerations in project management and regarded as most important parameters for measuring success of any project.

Poor performance of time and cost can lead to a significant amount of time and cost overrun which is global phenomenon. Time overrun can be defined as late completion of works as compared to the planned schedule or contract schedule. It occurs when the progress of a project falls behind its scheduled program. It may be caused by any party to the contract and may be a direct result of one or more circumstances. A contract delay has adverse effects on both the owner and contractor (either in the form of lost revenues or extra expenses) and it often raises the contentious issue of delay responsibility, which may result in conflicts that frequently reach the courts (Abbas, 2006) Cost overrun can be considered as the difference between actual cost of a project and its Cost limit. It occurs when the resultant cost target of a project exceed its cost limits where Cost limit of a project refers to the maximum expenditure that the client is prepared to incur on a completed building project while cost target refers to the recommended expenditure for each element of a project (Jackson and Steven, 2001). Construction cost which is out of control adds to investment pressure, increases construction cost, affects investment decision making and wastes the national finance might result in corruption or offence (Ali and Kamaruzzaman, 2010).

Samiaah, Hamzah, and Zakaria (2012) conform the findings of prior researches regarding quality cost system in building companies, they successfully illustratethe contractors' perceptions on the importance of the quality cost system and the barriers that may constrain theimplementation of the systemfor recording and collecting quality cost data. A postal and email surveys were undertaken on Malaysian building companies, focusing on the benefits and difficulties associated with the implementation of quality cost system. They adopted Chi-Square test and Relative Importance Index statistical techniques to investigate the significance of the relative importance of the factors. The most important benefit of measuring quality costs is "getting management attention and

increase quality awareness" as perceived by the sample of the study. The possible barriers that affect the management's decision to implement quality cost system are identified and grouped into three categories, which are culture and knowledge; system; and company. They suggest that the level of the site staff's knowledge should be as important as that of the management to successfully collect and record quality costs data. Their findings raised the level of awareness and sensitize managers and those involved with building industry about the importance of quality cost system and collecting quality costs data.

Total Quality Framework: CRITICAL SUCCESS FACTORS - CSFS

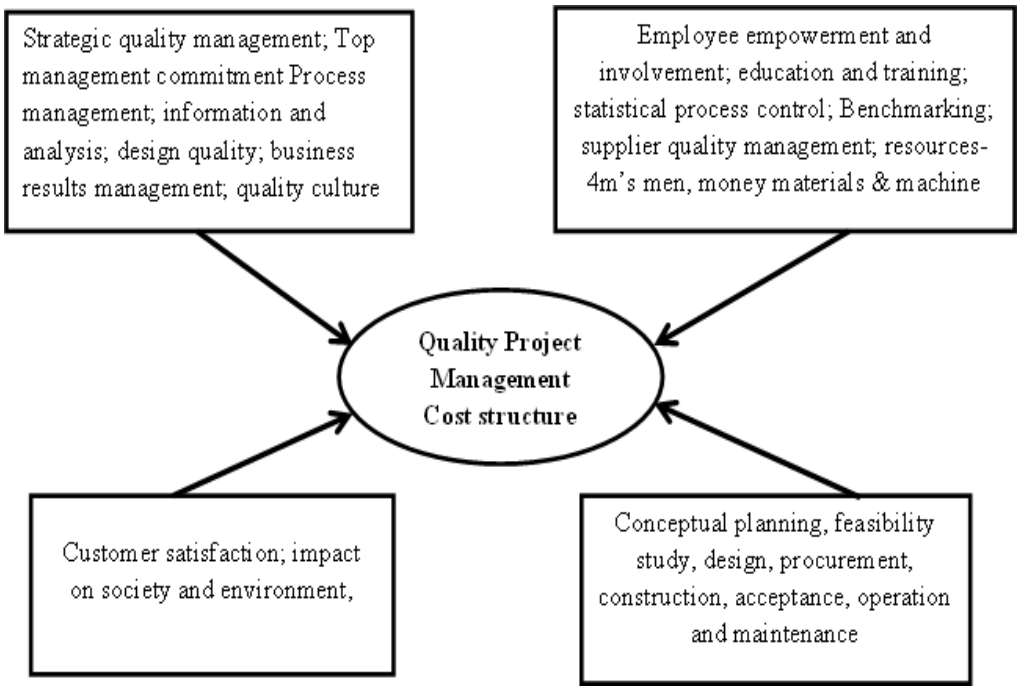

Figure1: Conceptual framework model for quality project management cost structure.

METHOD

The study adopts survey research design method because it intends to gather information about the opinion, practices, or attitudes of professionals (engineers, project managers and accountants). The target population was eighty (80) registered construction companies in Anambra State (see Appendix III for more details). The respondents are professional accountants and engineers who are employees of the construction companies in Anambra State. Anambra is a State in the South Eastern part of Nigeria.

Thus in arriving at the respondents forthis study, a preliminary survey was conducted to identify the studied population in Anambra State. The reason is to ensure that professionals responding to questions on quality management and project cost system had adequate knowledge about the subject matter.

The non-probability sampling method or technique was adopted in the selection or determination of studied population (sample size), that is, convenience on-probability method was adopted. Convenience sampling is probably the most common of all sampling techniques. With convenience sampling, the samples are selected because they are accessible to the researcher.

The questionnaire was designed based on the objectives, research questions and hypotheses, literature review of the study. The questionnaire contained structured close ended questions, but divided into two sections. Section one was designed to elicit information on the personal profiles of the respondents while the section two dwelt basically on factors affecting performance of project cost. Respondents were provided with statements of different expressions identified in the literature and were asked to identify or tick on a modified 4-point Resin Likert scale which according to their perception should be accorded top priority in the management of project cost. The researcher distributed 22 copies of questionnaire to the selected respondents out of which 54.5% (12 respondents) are accountants/auditors and 45.5% (10 respondents) are engineers of the copies of questionnaire distributed. Table-1and figure-1 gives more details. This shows that the samples are properly determined and there is no much disparity in the two groups of participants.

The face and content validity of the questionnaire were determined by an expert. The researcher presented the research topic, purpose, research questions and hypotheses with the draft instrument to the experts and requested them to consider the length of the entire instrument, suitability of the items, and clarity of instructions, and freely restructured the instrument, adding and deleting items as they deem fit to ensure that the instrument serves its purpose effectively. The experts agreed with the response options (i.e. strongly agreed, agreed, disagreed and strongly disagreed). The instrument was administered on ten (10) respondents made up of Management staff. Their responses were subjected to reliability analysis, using Cronbach Alpha to determine the reliability co-efficient. Cronbach Alpha is the current widely used procedures for estimating the internal reliability of survey instrument. Cronbach's Alpha estimate (0.65) of an instrument with an alternative form which is composed of the same number of items is reliable. Reliability estimates of .778, 0.609 and 0.679 were obtained for section B_1, B_2 and B_3 respectively while overall reliability co-efficient of 0.862 was obtained, hence, the instrument was adjudged reliable for the study.

Both descriptive and inferential statistics were used in analyzing and testing the

stated research hypotheses. Simple percentages, charts, mean and standard deviation will be used to answer the research questions; while single-factor or multi-level ANOVA (i.e. One-Way-ANOVA) and t-test will be deployed to test the hypotheses earlier stated. The F-test and t-test was used to test the null hypotheses at 5% (0.05) level of significance. The boundary limits of number were used as shown below to facilitate decision making:

Table1: Decision Rule

Response Options	Codes	Rating Point	Boundary Limits
Strongly Agreed	(SA)	4	3.50 – 4.00
Agreed	(A)	3	2.50 - 3.49
Disagreed	(D)	2	1.50 – 2.49
Strongly Disagreed	(SD)	1	1.00 – 1.49

Source: Researchers Computation, 2017

The decision rule was based on the mean rating which was calculated as follows: (4+3+2+1)/4 = 10/4 = 2.50. Therefore, an item with a mean rating of 2.50 and above shows the respondents agreed where the mean rating is below 2.50 it means the respondents disagreed with the statement(s). A null hypothesis (H_0) was accepted if the p-value is greater than or equals to the pre-set level of significance (5%= 0.05) or otherwise reject and accept the alternate hypothesis (H_1).

RESULTS AND DISCUSSION

Table 3 shows that 27.3% of the respondents are B.Sc. holders, 59.1% (13) are Masters Degree holders, while, Ph.D holders are 13.6% (3) this shows that 72.7% of the total respondents are academically qualified to understand the concept of quality management and project cost. Table 4 shows that 4.5% respondent have worked for 1-5 years, 18.2% of the respondents have worked for 6-10 years, while 77.3% have worked for 11 years and above. This confirm that the respondents will understand the concept been researched. This will aid to guarantee effective response of respondents to the questionnaires. Table 5 contains responses on research question 1. It can be deduced that the respondents rated statement one (q1) to statement eight (q8)agree on average meaning that the factors identify are responsible for project cost management. Statement three (q3) (that is, Strategic quality management is an effective tool for the implementation of TQM in quality of materials and equipment used in the project.) had the highest mean rating (3.64) followed by statement seven (q7). Information and analysis provide better return on the problem solving efforts, with mean rating of (3.59) these are the indicators that the quality management affect project cost, the same was shared by two groups of respondents.

Statement (q1) Process management identifies problem areas in cost of equipment and materials, cost of variation orders, cost of rework. Benchmarking (q4) is a tool to drive continuous improvement in conformance to specifications and quality assurance ranked equal in mean rating (3.5). This connotes that the respondents have properly understood the concept. While statement five (q5)-Quality culture gets management attention and increase quality awareness had the lowest mean score of (3.23) and grand mean of 3.005; this is an indication that the respondents do not have the same perception. Table 6 shows the two groups of respondents' mean score. Based on the result shown in table 6, we conclude that there is significant difference in the mean rating or perception?

Research question 2 was answered in table 7. It was revealed that the respondents rated or agreed with the items raised in research question two; statement nine had the highest mean rating followed by statement twelve (q12) and statement eleven (q11) while statement ten (q10) had the smallest mean score. With their respective mean scores 3.36, 3.27, 3.23, 3.18 and overall mean of 3.26; can we deduce that there is significant difference in the scores? This leads us to test for sample mean difference or equality. Research question 3 was attempted by table 8 it was discovered that the respondents agreed with the items raised in research question three; statement thirteen (q13) had the highest mean rating (3.68) followed by statement fourteen (q14) with mean score (3.41) and statement fifteen (q15) ranked last with mean score (2.50) and grand mean of 3.20; we deduce that there is significant difference in the scores? This leads us to test for sample mean difference or equality.

To test the hypothesis 1, a two-tail t-test of the difference between the means of the two groups (i.e. accountants and engineers) was undertaken based on the responses. The result is presented in Table 8.The t-*test* analysis as shown in Table 10 reveals that the calculated p-value of t(20) = -2.088 (p =.050) is equals to the significant level of 0.05. Consequently, the null hypothesis (H_0) that the perceptions of accountants and engineers in Anambra State on the material factors that affect the performance of projects cost given their organisational type does not differ significantly was accepted. That is, the perceptions of accountants and engineers in Anambra State on the material factors that affect the performance of projects cost is not difference.

To test the hypothesis 2, a two-tail f-test (ANOVA) of the difference between the means of the three groups (that is, B.Sc./HND, Masters and Ph.D.) was undertaken based on the responses of the respondents. The results are presented in Table 10. The *F-test* analysis as shown in Table 10 reveals that the calculated p-value of f(2, 19) = 3.239 (p =.062) is higher than the significant level of five percent (0.05). Thus, the null hypothesis (H_0) that the perception of accountants and engineers base on time

management factors that affect the performance of project cost is not significantly influenced by their educational qualification was accepted. This implies that there is no significant difference in the perception of accountants and engineers base on educational qualification in Anambra State on time management factors that affect the performance of project cost.

To test the hypothesis 3, a two-tail f-test (ANOVA) of the difference between the means of the three groups (i.e. 1-5years, 6-10 years and 11 years and above.) was undertaken based on the responses of the respondents. The *F-test* analysis as shown in Table 10 reveals that the calculated p-value of f (2, 19) = 0.188 (p = 0.830) is higher than the significant level of five percent (0.05). Therefore, the null hypothesis (H_0) which states that the perceptions mean rating of accountants and engineers in Anambra State on quality management factors that affect the performance of project cost is independent of Years of working experience was accepted and the opposite alternate hypothesis was rejected. The study reveals that cost is perceived as an increasingly important factor for successful project planning and implementation. A good cost management is essential to the survival of firms. The study also found out that there is no significant difference in the perceptions of accountants and engineers with regards to the critical factors that affect project cost. This is underscored by the revelation of the study that the perceptions mean rating of accountants and engineers in Anambra State on quality factors that affect the performance of project cost is independent of working experience.

Table 2: Respondents' Job Title

Job Title/ Designations	**Frequency**	**Percent (%)**
Accountants/Auditors	12	54.5
Engineer/Project Manager	10	45.5
Total	**22**	**100.0**

Source: Researcher's Computation (2017) via SPSS version 23

Table 3: Respondents' Educational Qualification

Educational Qualification	**Frequency**	**Percent**
BSc/HND	6	27.3
Masters	13	59.1
PhD	3	13.6
Total	**22**	**100.0**

Source: Researcher's Computation (2017) via SPSS version 23

Table 4: Respondents' Years of working experience

Years of working experience	**Frequency**	**Percent**
1-5 years	1	4.5
6-10 years	4	18.2
11 years and above	17	77.3
Total	**22**	**100.0**

Source: Researcher's Computation (2017) via SPSS version 23

Table 5: Descriptive Statistics of respondents' mean rating of material factors that affect the performance of projects cost

S /N	**Items**	$\bar{x}$**(N =22)**	**SD(**δ**)**	**Remarks**
q1	Process management identifies problem areas in Cost of equipment and materials/Cost of variation orders/ Cost of rework.	3.50	.673	Strongly Agree
q2	Design quality management reduce the cost of non-conformances in escalation of material prices and estimated time for project construction	3.27	.631	Agree
q3	Strategic quality management is an effective tool for the implementation of TQM in quality of materials and equipment used in the project.	3.64	.581	Strongly Agree
q4	Benchmarking is a tool to drive continuous improvement in conformance to specifications and quality assurance.	3.50	.598	Strongly Agree
q5	Quality culture gets management attention and increase quality awareness	3.23	.752	Agree
q6	Employee empowerment and involvement change the way the employees think about errors and reduce cost of rework or delay.	3.45	.671	Agree
q7	Information and analysis provide better return on the problem solving efforts.	3.59	.590	Strongly Agree
q8	Statistical process control provide means to measure the true impact of corrective action	3.36	.581	Agree
	Grand Mean ($\bar{X}$ ***)***	***3.005***	***0.635***	***Agree***

Source: Researcher's Computation (2017) via SPSS version 23

Table 6: Descriptive Statistics of respondents' mean rating of material factors that affect the performance of projects cost

Job Title	**N**	$\bar{x}$	**SD**
Accountants/Auditors	12	3.28	.403
System/Civil Engineer/Project Manager	10	3.64	.393

Source: Researcher's Computation (2017) via SPSS version 23

Table 7: Descriptive Statistics of respondents' mean rating of time management factors that affect the performance of projects cost

S /N	Item	(N =22)	SD
q9	Top management commitment reduced delay in payment from owner to contractor	3.36	.658
q10	Supplier quality management reduced percentage of orders delivered late	3.18	.733
q11	System design constrain reduce estimated time for project	3.23	.685
q12	Lack of Information and management interest caused delay in claim approval.	3.27	.883
	Grand Mean	***3.26***	***.740***

Source: Researcher's Computation (2017) via SPSS version 23

Table 8: Descriptive Statistics of respondents' mean rating of quality management factors that affect the performance of projects cost

S /N	Item	(N =22)	SD	Remarks
q13	Quality of materials and equipment used in the project reduced cost of rework and enhanced customer satisfaction.	3.68	.477	Strongly Agree
q14	Education and Training reduce estimated time for project construction and Percentage of orders delivered late.	3.41	.590	Agree
q15	Supplier quality management minimizes the cost of variation orders and escalation of material prices.	2.50	1.011	Agree
	Grand Mean	***3.20***	***0.693***	***Agree***

Source: Researcher's Computation (2017) via SPSS version 23

Table 9: t-Test (ANOVA) Comparison of respondents' mean ratings on material factors that affect the performance of projects cost

t-test for Equality of Means	t	df	Mean Difference	Sig. (2-tailed)	Decision
Equal variances assumed	-2.088	20	-.35625	.050	Accept H_0

Source: Researcher's Computation (2017) via SPSS version 23

Table 10: F-Test (ANOVA) Comparison of respondents' means ratings on time management factors that affect the performance of projects cost

F-test for comparison of Means	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between Groups	1.147	2	.573	3.239	.062	Accept H_0
Within Groups	3.363	19	.177			
Total	**4.510**	**21**				

Source: Researcher's Computation (2017) via SPSS version 23

Table 10: F-Test (ANOVA) Comparison of respondents' means ratings on quality management factors that affect the performance of projects cost

F-test for comparison of Means	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between Groups	.076	2	.038	.188	.830	Accept H_0
Within Groups	3.848	19	.203			
Total	3.924	21				

Source: Researcher's Computation (2017) via SPSS version 23

CONCLUSION AND RECOMMENDATIONS

Cost is not just a word to be viewed with disparagement by professionals. The crucial element in project management process which the accountants and engineers must comprehend despite the apparent ambiguities of the accounting systems employed to report cost. The perception of cost is more than the expenses incurred in the execution of the project or contract: the *modus* in which cost is controlled by the firm's functional elements can affect project financial and non-financial performance. Hence, the meticulous professionals must develop a comprehensive project cost and the accounting systems used to record and report costs. The professionals should ascertain the influence of the period of project cost, and the variances between obligations, expenses, and cash flow. Professionals should insist on the accounting system amendments needed to billet proj-ect cost reporting and control requirements. Once an appreciation for these concepts has been gained, the project manager can apply this knowledge towards positively influencing project and organizational profitability in all areas of cost through control of the project schedule and the execution of the project's work. Based on the conclusion, the project professionals should reflect on the following points in developing their quality management systems and project cost:

i. Commitment to quality and to continuous quality development is crucial in project execution and implementation. Management commitment to TQM and participation in the planning process and implementation in order to succeed.
ii. Professionals should be aware of the importance of quality training. Accounting, engineering, architecture and project management students who will become captains of the industry must be educated in the nitty-gritties of quality management project cost.
iii. Education and training in quality management project theory and practices at all levels, that is, strategic, tactical and operational levels or phases are essential to enhance competitiveness.
iv. Teamwork is indispensable to allow every person to acquire the assistance needed to be successful individually, and collectively work as a team. Stakeholders and above all, the owner must be involved in the

process.Partnering arrangements between these parties willen hance total quality management of project cost.

There should be a thorough investigation of cost estimating procedures used within a project management throughout a product development stages. There should equally be an assessment of risk analysis framework for cost estimation in project management. Also, there is need for the assessment of contractors' perception of the use of costs of quality system in Nigerian projects implementation.

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Appendix-I

Data Analysis Output from Statistical package for social science students (SPSS) version-23

```
SAVE OUTFILE='C:\Users\NWOKOCHA\Downloads\ACCOUNTANCY DEPT\perception of accountant &
'+    'engineering on cost\INPUT EZEAGBA.sav'/COMPRESSED.
RELIABILITY/VARIABLES=Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15
/SCALE ('ALL VARIABLES') ALL/MODEL=ALPHA.
```

Reliability

Notes

Output Created		29-APR-2017 18:17:09
Comments		
Input	Data	C:\Users\NWOKOCHA\Downloads\ACCOUNTANCY DEPT\perception of accountant & engineering on cost\INPUT EZEAGBA.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	10
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 /SCALE('ALL VARIABLES') ALL/MODEL=ALPHA.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.17

Scale: ALL VARIABLES

Reliability Statistics

Cronbach's Alpha	N of Items
.862	15

RELIABILITY /VARIABLES=Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.

Reliability Scale: ALL VARIABLES

Reliability Statistics

Cronbach's Alpha	N of Items
.778	8

RELIABILITY/VARIABLES=Q9 Q10 Q11 Q12 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.

Reliability Scale: ALL VARIABLES

Reliability Statistics

Cronbach's Alpha	N of Items
.609	4

RELIABILITY/VARIABLES=Q13 Q14 Q15/SCALE('ALL VARIABLES') ALL/MODEL=ALPHA.

Reliability

Scale: ALL VARIABLES

Reliability Statistics

Cronbach's Alpha	N of Items
.679	3

Appendix-II
QUESTIONNAIRE

NnamdiAzikiwe University, Awka, Anambra State, Nigeria, Faculty of Management Sciences, Department of Accountancy,

Dear Sir/Madam,

The undersigned is a lecturer of the above name institution undergoing a study on Nigerian Accountants and Engineers' Perceptions of Quality Management Project Cost Questionnaire (NAEPOQUMAPCOQ). It would be appreciated if you can assist to complete this questionnaire. We assure you that all information given shall be kept secret and use for the purpose it is meant for.

Thank you.

Ezeagba, Charles Emenike

Researcher

Nigerian Accountants and Engineers' Perceptions of Quality Management Project Cost Questionnaire (NAEPOQUMAPCOQ).

Section A: Demography

Please, tick (**"**) as appropriate:

Years of working experience:

1-5years 6-10years 11years & Above

Designation/Job title

Accountants/ Auditors System/Cite/Civil/Engineer/Project Manager

Educational qualification:

Bsc/HND Masters PhD

Section B:

Tick the appropriate as applicable to each statement. The statements are rated 4-point Resin Likert scale type ranging from strongly agree to strongly disagree with their respective points: strongly agreed-**SA(4),** agree-**A (3),** disagreed-**D (2)** and strongly disagreed - **SD (1)**

Section B1:The following relate to material factors that affect the performance of projects cost:

		SA 4	A 3	D 2	SD 1
1	Process management identifies problem areas in Cost of equipment and materials/ Cost of variation orders/ Cost of rework.				
2	Design quality management reduce the cost of non-conformances in escalation of material prices and estimated time for project construction.				

3	Strategic quality management is an effective tool for the implementation of TQM in quality of materials and equipment used in the project.
4	Benchmarking is a tool to drive continuous improvement in conformance to specifications and quality assurance.
5	Quality culture gets management attention and increase quality awareness
6	Employee empowerment and involvement change the way the employees think about errors and reduce cost of rework or delay.
7	Information and analysis provide better return on the problem solving efforts.
8	Statistical process control provide means to measure the true impact of corrective action

Section B2:The following statements relate to time management factors that affect the performance of project cost:

		SA 4	**A 3**	**D 2**	**SD 1**
9	Top management commitment reduced delay in payment from owner to contractor				
10	Supplier quality management reduced percentage of orders delivered late				
11	System design constrain reduce estimated time for project				
12	Lack of Information and management interest caused delay in claim approval.				

Section B3:The following statements relate to quality management factors that affect the performance of project cost:

		SA4	**A3**	**D2**	**SD1**
13	Quality of materials and equipment used in the project reduced cost of rework and enhanced customer satisfaction.				
14	Education and Training reduce estimated time for project construction and Percentage of orders delivered late.				
15	Supplier quality management minimizes the cost of variation orders and escalation of material prices.				

Appendix-III

S/N	**Name of Registered Construction or Project Companies in Anambra State**
1	Fab Metal Construction Company
2	Metal Construction Group
3	Afaco Steel Construction Nigeria
4	Afribuild Limited
5	Afrimatech Construction Company
6	Agc Drilling Technologies Limited
7	Akaekpuchionwa Building Construction Nigerisa Limited
8	Ambson And Associate Builders Nig.
9	Amicable Construction Company Nigeria Limited
10	Anexo Construction Company Limited
11	Angon Engineering Limited
12	Arohtech Construction Company
13	Building Bakers Limited
14	C. Chinadoz Construction Nigeria Limited
15	Charles Building Company Nigeria Limited
16	Chikwado Iron Construction Centre
17	Chimaobi Steel Construction Company
18	Chinez Construction
19	Chitraco Construction Company
20	Chuzzy Construction Company
21	Conifer Konstruktion Nigeria Limited
22	Consolidated Construction Company

23 Cor Construction Company
24 Cormel Engineering Ltd
25 Crystal Construction Company
26 De Young Engineering Constructions (DYEC)
27 Deny Construction Company
28 Derasko Building Construction Service
29 Dimmak Construction Company Nigeria
30 Dollars International Construction Company
31 Domek Metal Construction Company Nigeria
32 E-Adept Biulders Nigeria
33 Ebu Construction Company
34 Elites Engineering Company
35 Emma-Emmanuel Construction Limited
36 Emmansy-Fely Engineering Limited
37 EngrChinedu Building Construction
38 Enison Engineering Limited
39 Erico Iron & Steel Construction & Fabrication Company
40 Esquared Construction And Consultancy Services Limited
41 Etochukwu Construction Company
42 Ezu Like Construction Limited
43 Famba Project And Engineering Holdings
44 Ferdyn Construction Work Limited
45 Fine Views Associates And Constructions
46 Georico Drilling Company
47 God's Favour Water Drilling Company
48 GodspowerConstrution Company
49 Great Austin Building
50 Hicon Engineering Company
51 Hygis Metal Works (Nigeria) Limited)
52 IK-Steel Construction Company
53 Iyiakaimo Construction Company
54 Iykeson Civil Engineering Company
55 Joe Chuks Building And Construction Company
56 Joel Construction
57 Joemac Construction Limited
58 Jorj Construction Company Limited
59 Kalix Engineering Nigeria Limited
60 Kenelike Aqua duty And Construction Company
61 Kudeb Engineering Company Limited
62 Life Engineering Company Nigeria Limited
63 Maxson Builder Company
64 Mechark Construction Company
65 Michael And Cos Drilling Service
66 New Ideal Drilling Company-Awka, AwkaNorth,Anambra,Nigeria
67 Niger Construction Limited
68 Patchyke Construction Limited

69 Patex Doors Steel Construction Nigeria
70 Safari Construction Nigeria Limited
71 Schomic Engineering Nigeria Limited
72 Sunnytex Engineering Company Nigeria
73 Supporttah Builders
74 Thisco Construction
75 Tos Construction Limited
76 Uche Best Metal Construction Works
77 Uche Welding Construction Works
78 Unosonic Engineering Limited
79 Vivid Construction And Commercial Company Limited
80 Willico Engineering Company

Source: www.vconnect.com